

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE OF PAGES	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. <i>(If applicable)</i>	
6. ISSUED BY		CODE		7. ADMINISTERED BY <i>(If other than Item 6)</i>		CODE	
8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i>				(X)		9A. AMENDMENT OF SOLICITATION NO.	
						9B. DATED <i>(SEE ITEM 11)</i>	
						10A. MODIFICATION OF CONTRACT/ORDER NO.	
						10B. DATED <i>(SEE ITEM 11)</i>	
CODE		FACILITY CODE					

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

- ☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
- (a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES <i>(such as changes in paying office, appropriation date, etc.)</i> SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER <i>(Specify type of modification and authority)</i>

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER <i>(Type or print)</i>		16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>		<i>(Signature of Contracting Officer)</i>	

Item 14. Continued.

CHANGES TO SECTION 00700 CONTRACT CLAUSES

1. Section 00700, Page 00700-72, Paragraph 98. - After this clause add the following clause:

"99. 52.232-18 Availability of Funds (Apr 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer."

CHANGES TO THE SPECIFICATIONS

2. Replacement Section - Replace the following section with the accompanying new section of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACW63-00-B-0003:"

02300 EARTHWORK

END OF AMENDMENT

SECTION 02300

EARTHWORK
12/97
AMENDMENT NO. 0004

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

[AM#4] <u>ASTM C 88</u>	<u>(1990) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate</u>
[AM#4] <u>ASTM C 131</u>	<u>(1996) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine</u>
ASTM C 136	(1996) Sieve Analysis of Fine and Coarse Aggregates
[AM#4] <u>ASTM D 75</u>	<u>(1987; R 1992) Sampling Aggregates)</u>
ASTM D 422	(1963; R 1990) Particle-Size Analysis of Soils
ASTM D 1140	(1992) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1993) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1995a) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
[AM#4] <u>ASTM 4791</u>	<u>(1994) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregates</u>

1.2 MEASUREMENT

1.2.1 Excavation

The unit of measurement for excavation will be the cubic yard, computed by the average end area method from cross sections taken before and after the excavation and borrow operations. The volume to be paid for will be the number of cubic yards of material measured in its original position and removed from the excavation and borrow areas, including the excavation for ditches, gutters, and channel changes, when the material is acceptably utilized or disposed of as herein specified. The measurements will include authorized excavation of rock, authorized excavation of unsatisfactory subgrade soil, and the volume of loose, scattered rocks and boulders collected within the limits of the work; allowance will be made on the same basis for selected backfill ordered as replacement. The measurement will not include the volume of material that is scarified or plowed and reused in-place, and will not include the volume excavated without authorization or the volume of any material used for purposes other than directed. The measurement will not include the volume of any excavation performed prior to the taking of elevations and measurements of the undisturbed grade.

1.2.2 [AM#4] Crushed Rock Backfill

Unit of measurement for crushed rock backfill will be the ton (2,000 pounds) of crushed rock material placed in the work. Crushed rock delivered by trucks or other vehicles shall be weighed on approved scales at the quarry/production site before being placed in the work. The scales shall be tested as often as deemed necessary by the Contracting Officer to insure accurate weights. The Contractor may be required to weigh the stone in the presence of the Contracting Officer or his authorized representative, who will certify as to the correctness thereof. The tare weight of each hauling unit shall be checked immediately after each load is delivered. The Contractor will be responsible for providing certified trip tickets or similar documentation of pre-loaded tare weight and after-loaded haulage weight to the Contracting Officer or his authorized representative for each load at the time it is delivered on site.

1.2.3 Topsoil Requirements

Separate excavation, hauling, and spreading or piling of topsoil and related miscellaneous operations will be considered subsidiary obligations of the Contractor, covered under the contract unit price for excavation.

1.3 PAYMENT

1.3.1 [AM#4] Excavation

Excavation will be paid for at the contract unit price for "Common Excavation." This payment will constitute full compensation for all costs of stripping, removing, loading, transporting, dumping, stockpiling, rehandling stockpiled materials (if necessary), and disposing of unsuitable and excess excavated materials.

1.3.2 [AM#4] Crushed Rock Backfill

Payment for crushed rock backfill actually placed for required permanent work within the limits shown on the drawings or as otherwise required by the Contracting Officer will be made at the contract unit price per ton for "Crushed Rock Backfill" which price shall constitute full compensation for all costs of furnishing and placing the crushed rock as specified.

1.4 DEFINITIONS

1.4.1 Satisfactory Materials

Satisfactory materials shall comprise any materials classified by ASTM D 2487 as [AM#4] GC, GP-GC, GM-GC, SW, SP, SC, SW-SC, SP-SC, CL or CH. Satisfactory materials for grading shall be comprised of stones less than 8 inches, except for fill material for pavements and railroads which shall be comprised of stones less than 3 inches in any dimension.

1.4.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. The Contracting Officer shall be notified of any contaminated materials.

1.4.3 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Testing required for classifying materials shall be in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

1.4.4 Topsoil

Satisfactory material obtained from excavations will be suitable for topsoil.

1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-08 Statements

Earthwork; FIO.

Procedure and location for disposal of unused satisfactory material.

SD-09 Reports

Testing; FIO.

Within 24 hours of conclusion of physical tests, 2 copies of test results, including calibration curves and results of calibration tests.

SD-13 Certificates

Testing; FIO.

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

SD-18 Records

Earthwork; FIO.

Notification of encountering rock in the project. Advance notice on the opening of excavation areas.

1.6 FIELD COMPACTION

Field compaction requirements for the crushed rock backfill shall be based on the results of a test section constructed by the Contractor, using the materials, methods, and equipment proposed for use in the work. The test section shall meet the requirements of paragraph TEST SECTION.

1.7 EQUIPMENT

1.7.1 General Requirements

All plant, equipment, and tools used in the performance of the work will be subject to approval before the work is started and shall be maintained in satisfactory working condition at all times.

1.7.2 Compaction Equipment

A dual or single smooth drum roller which provides a maximum compactive effort without crushing the crushed rock aggregate shall be used for compaction.

1.8 SUBSURFACE DATA

Subsurface soil boring logs are shown on the drawings. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations.

1.9 CLASSIFICATION OF EXCAVATION

No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

1.9.1 Common Excavation

Common excavation shall include the satisfactory removal and disposal of all materials.

1.10 BLASTING

Blasting will not be permitted.

1.11 UTILIZATION OF EXCAVATED MATERIALS

Unsatisfactory materials and excess satisfactory material removed from excavations shall be disposed of in designated waste disposal or spoil areas. No excavated material shall be disposed of or temporarily stockpiled to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

PART 2 MATERIALS

2.1 Crushed Rock Backfill

2.1.1 [AM#4] General Requirements

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by an approved commercial testing laboratory, or by the Contractor subject to approval. Material shall be tested to establish compliance with the specified requirements.

2.1.2 [AM#4] Sampling

Crushed rock samples shall be taken in accordance with ASTM D 75.

2.1.3 [AM#4] Testing

2.1.3.1 [AM#4] Sieve Analysis

Sieve Analyses shall be made in accordance with ASTM C 136.

2.1.3.2 [AM#4] Density Tests

Density Tests shall be performed as specified herein.

2.1.3.3 [AM#4] Soundness Test

Soundness tests shall be made in accordance with ASTM C 88.

2.1.3.4 [AM#4] Los Angeles Abrasion Test

Los Angeles abrasion tests shall be made in accordance with ASTM C 131.

2.1.3.5 [AM#4] Flat or Elongated Particles Tests

Flat and/or elongated particle tests shall be made in accordance with ASTM D 4791.

2.1.3.6 [AM#4] Fractured Faces Tests

Approved test methods shall be used to assure the aggregate meets the requirements for fractured faces.

2.2 [AM#4] Approval of Materials

2.2.1 [AM#4] Material Source

The crushed rock source shall be selected at least 60 days prior to field use in the test section. Tentative approval of the source will be based on certified test results to verify that materials proposed for use meet the contract requirements. Final approval of both the source and the material will be based on test section performance and tests for gradation, soundness, Los Angeles abrasion, flat and/or elongated particle tests and fractured faces tests. These tests shall be performed on samples taken from the completed and compacted crushed rock backfill within the test section.

2.2.2 [AM#4] Material Quality

The crushed rock backfill material shall consist of clean, sound, hard, durable, angular particles of crushed stone or crushed gravel which meet

the specification requirements except that limestone shall not be permitted.

The crushed rock backfill shall have a soundness loss not greater than 18 percent weighted averaged at 5 cycles when tested in magnesium sulfate in accordance with ASTM C 88. The aggregate shall have a percentage of loss on abrasion not to exceed 40 after 500 revolutions as determined by ASTM C 131. ASTM D 4791 with the following modifications shall determine the percentage of flat and/or elongated particles. The aggregates shall be separated into 2 size fractions. Particles greater than ½ inch sieve and particles passing the ½ inch sieve and retained on the NO. 4 sieve. The percentage of flat and/or elongated particles in either fraction shall not exceed 20. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than 3. When the crushed rock backfill is supplied from more than one source, aggregate from each source shall meet the specified requirements. When the aggregate is supplied from crushed gravel it shall be manufactured from gravel particles, 90 percent of which by weight are retained on the maximum-size sieve listed in Table 1. In the portion retained on each sieve specified, the crushed gravel shall contain at least 90 percent by weight of crushed pieces having two or more freshly fractured faces with the area of each face being at least equal to 75 percent of the smallest midsectional area of the face. When two fractures are contiguous, the angle between planes of the fractures must be at least 30 degrees in order to count as 2 fractured faces.

2.2.3 [AM#4] Gradation Requirements

Gradation for the crushed rock shall fall within the following limits.

<u>Sieve Size</u> <u>(square mesh)</u>	<u>Percent Passing</u> <u>(by weight)</u>
<u>3/4 inch</u>	<u>100</u>
<u>No. 4</u>	<u>70-100</u>
<u>No. 10</u>	<u>40-70</u>
<u>No. 40</u>	<u>20-40</u>
<u>No. 100</u>	<u>0-5</u>

PART 3 EXECUTION

3.1 STRIPPING OF TOPSOIL

Where indicated or directed, topsoil shall be stripped to a depth of 6 inches. Topsoil shall be spread on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Material to be used as topsoil shall be kept separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 2 inches in diameter, and other materials that would interfere with planting and maintenance operations. Any surplus of topsoil from excavations and grading shall be removed from the site.

3.2 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Grading shall be in conformity with the typical sections shown and the tolerances specified in paragraph FINISHING. Satisfactory excavated materials not used as topsoil shall be

disposed of as directed. Unsatisfactory materials encountered within the limits of the work shall be excavated below grade and replaced with crushed rock as directed. Such excavated material and the crushed rock ordered as replacement shall be included in excavation. Unsatisfactory excavated material shall be disposed of in designated waste or spoil areas. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times.

3.2.1 Ditches, Gutters, and Channel Changes

Excavation of ditches, gutters, and channel changes shall be accomplished by cutting accurately to the cross sections, grades, and elevations shown. Ditches and gutters shall not be excavated below grades shown. Excessive open ditch or gutter excavation shall be backfilled with satisfactory, thoroughly compacted, material or with suitable stone or cobble to grades shown. Material excavated shall be disposed of as shown or as directed, except that in no case shall material be deposited less than 4 feet from the edge of a ditch. The Contractor shall maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

3.3 TEST SECTION

3.3.1 Data

A test section shall be constructed to evaluate the constructability of the crushed rock backfill including required placement, and compaction procedures. Test section data will be used by the Contracting Officer to determine the required number of passes and the field dry density requirements for full scale production.

3.3.2 Scheduling

The test section shall be constructed a minimum of 30 days prior to the start of full scale production to provide sufficient time for an evaluation of the proposed materials, equipment and procedures including Government QA testing.

3.3.3 Location and Size

The test section shall be placed in an area approved by the Contracting Officer. The underlying courses and subgrade preparation, shall be completed, inspected and approved in the test section prior to placement of the crushed rock backfill. The test section shall be a minimum of 60 feet long 10 feet wide and 2 feet deep. The test section may be used as part of the permanent works.

3.3.4 Initial Testing

Certified test results, to verify that the materials proposed for use in the test section meet the contract requirements, shall be provided by the Contractor and approved by the Contracting Officer prior to the start of the test section.

3.3.5 Mixing, Placement, and Compaction

Placement and compaction shall be accomplished using equipment meeting the requirements of paragraph EQUIPMENT. Compaction equipment speed shall be no greater than 1.5 miles per hour.

3.3.6 Procedure

3.3.6.1 Crushed Rock Backfill Tests

The test section shall be constructed with aggregate in a moist state so as to establish a correlation between number of roller passes and dry density achievable during field production. Density and moisture content tests shall be conducted at both the bottom and midpoint of each compacted lift in accordance with ASTM D 2922 and ASTM D 3017. Sieve analysis tests shall be conducted on composite samples, taken adjacent to the density test locations, which represent the total layer thickness. One set of tests (i.e. density, moisture, and sieve analysis) shall be taken before compaction and after each subsequent compaction pass at three separate locations as directed by the Contracting Officer. Compaction passes and density readings shall continue until the difference between the average dry densities of any two consecutive passes is less than or equal to 0.5 pcf. The test section shall be completed by making one final pass with the roller in the static mode and observing any change in the drainage layer surface texture.

3.3.7 [AM#4] Evaluation

Within 10 days of completion of the test section, the Contractor shall submit to the Contracting Officer a Test Section Construction Report complete with all required test data and correlations. The Contracting Officer will evaluate the data and provide to the Contractor the required number of passes of the roller, the dry density for field density control during construction, the depth at which to check the density, and the need for a final static pass of the roller.

3.4 BORROW MATERIAL

The crushed rock backfill meeting the quality requirements of these specifications is not available from required excavation. The Contractor shall make all arrangements for procuring, loading, hauling, handling, and placing all stone materials from approved off-site sources. The Contractor shall designate in writing source(s) from which he proposes to furnish the crushed rock backfill materials at least 60 days in advance of placement of [AM#4] the test section.

3.5 OPENING AND DRAINAGE OF EXCAVATION

The Contractor shall notify the Contracting Officer sufficiently in advance of the start of any excavation to permit elevations and measurements of the undisturbed ground surface to be taken. Except as otherwise permitted, excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated spoil areas or otherwise disposed of as directed. The Contractor shall ensure that excavation of any area, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

3.6 SUBGRADE PREPARATION

3.6.1 Construction

Subgrade shall be shaped to line, grade, and cross section, and compacted as specified. This operation shall include plowing, disking, and any moistening or aerating required to obtain specified compaction. Soft or

otherwise unsatisfactory material shall be removed and replaced with crushed rock or other approved material as directed. Rock encountered in the cut section shall be excavated to a depth of 6 inches below finished grade for the subgrade. Low areas resulting from removal of unsatisfactory material or excavation of rock shall be brought up to required grade with crushed rock, and the entire subgrade shall be shaped to line, grade, and cross section and compacted as specified. The elevation of the finish subgrade shall not vary more than 0.05 foot from the established grade and cross section.

3.6.2 Compaction

Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Subgrade compaction shall be achieved with 6 passes of an approved roller.

3.7 BACKFILL

3.7.1 Crushed Rock Backfill

Crushed rock backfill, as defined above, shall be placed in successive horizontal layers of loose material not more than 8 inches in depth. Pieces of rock larger than 3/4 inches in the greatest dimension shall not be used. Each layer of material shall be spread uniformly, completely saturated, and compacted as required based on results of the test section.

3.8 FINISHING

Surfaces shall be finished smooth and compact in accordance with the lines, grades, and cross sections or elevations shown. The degree of finish for graded areas shall be within 0.1 foot of the grades and elevations indicated except that the degree of finish for subgrades shall be specified in paragraph SUBGRADE PREPARATION. Gutters and ditches shall be finished in a manner that will result in effective drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing materials.

3.9 TESTING

Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. The first inspection will be at the expense of the Government. Cost incurred for any subsequent inspections required because of failure of the first inspection will be charged to the Contractor. Field in-place density shall be determined in accordance with ASTM D 2922. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. [AM#4] One density test shall be performed for each 100 tons of fill placed, with a minimum of 2 per day for the duration of placement of the crushed rock backfill. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 3017; the calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered [AM#4] and after every 10th nuclear density test during placement of the crushed rock backfill or at other intervals as directed by the Contracting Officer. [AM#4] A sieve analysis of placed

material shall also be performed along with the density calibration check. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompact to meet specification requirements. Tests on recompact areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests.

3.9.1 [AM#4] Density Deficiency

Density shall be considered deficient if the field dry density test results are below the dry density specified by the Contracting Officer. If the densities are deficient, the layer shall be rolled with 2 additional passes of the specified roller. If the dry density is still deficient, work will be stopped until the cause of the low dry densities can be determined by the Contracting Officer.

3.10 SUBGRADE PROTECTION

During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along subgrade shall be maintained to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operation and shall be protected and maintained by the Contractor in a satisfactory condition until permanent work is placed. The storage or stockpiling of materials on the finished subgrade will not be permitted. No permanent work shall be laid until the subgrade has been checked and approved, and in no case shall permanent work be placed on a muddy, spongy, or frozen subgrade.

-- End of Section --